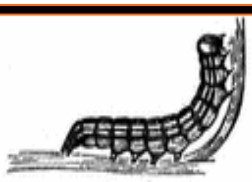
ALERT: The Winter Cutworm



…… a new crop pest first detected in Oregon in 2001

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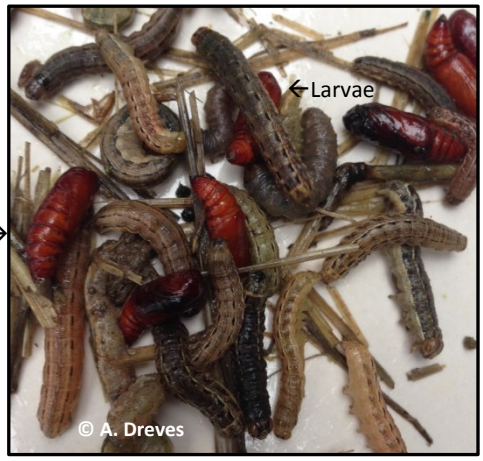

Large numbers of **Winter Cutworm** (*Noctua pronuba*), otherwise known as the **Large Yellow Underwing Moth**, have been reported throughout the fall and winter months across several counties in western Oregon and Washington. First detected in Oregon in 2001, the winter cutworm has not previously been documented as an agricultural pest in the state. Grasses, small grains, legumes, and weeds are preferred by these larvae in the moth family Noctuidae. Winter cutworms have been actively feeding during cold conditions in grass seed fields (ryegrass and tall fescue), seedling clover seed fields, grape vineyard cover crops, grass pastures, canola, lawns, meadows, sod, golf course collars, and the approach to putting greens. Winter cutworms have also been reported in extraordinary quantities around structures, houses, and sidewalks across the region. During the day winter cutworms tend to hide near the base of plants in protected areas, and come out at night to feed. Winter cutworms are closely-related to other cutworm and armyworm species found in agricultural fields, such as variegated, glassy, spotted, and black cutworms; and the true armyworm.

Impact in Fall 2015. Winter cutworms are cold-tolerant, compared to other cutworm and armyworm species. These cutworms have a unique feature in that they are gregarious & highly mobile (similar to armyworms), and have the ability to cause heavy defoliation of above-ground parts and crowns, as they move across fields through fall and winter! Late season defoliation from cutworms on grasses could deplete root reserves, causing increased winter injury to crops if cold temperatures persist, which could reduce spring regrowth. Feeding is of great concern in new seedlings and in established dormant stands.

Identification. It is important to accurately distinguish between cutworm and armyworm species, so that effective management decisions can be made. *Winter cutworm larvae* can feed all winter unlike most cutworm/armyworm species. They are about 1/8 to 2 inches long, dark brown to grey or a green (young), smooth marked with a series of black dashes over a light-colored line on both sides of the body; a tan head with a pattern ⅄ & two black angled lines. Larvae will feed, mature, & we expect them to pupate in the spring (≈March-April). *Pupae* are red-brown color and about an inch long.

Adult moths have yellow-orange hindwings with a black band on margin of the wing; and the forewings are light to orange-brown or greyish with dark spots or small patches. We expect moths to emerge ≈May-June and egg-laying in ≈July-August.

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The Winter Cutworm

Why such high populations of winter cutworm in fall of 2015? The exact cause of the winter cutworm occurring in such large numbers is unknown, but high densities of *true armyworm* outbreaks often occurred during unusually wet years that are followed by unusually dry years and mild winters. The winter cutworm exists across US, including Idaho, California, Michigan, New York, New Jersey, Alaska, and Canada. High densities are irregular, some species occur over consecutive seasons, four-five to 10-15 year cycles.

Here are a few factors that may have influenced a 2015 cutworm outbreak:

1) high survival of mature larvae because of mild winter in 2014-2015;
2) possible spring migration of underwing moths (who lay eggs) as they are known to be strong fliers;
3) abundance of eggs laid in permanent and moist vegetation, and crops infested after undetected larvae matured in the fall;
4) late night activity of larvae, which makes them difficult to detect during the day;
5) availability of volunteer vegetation (weeds and border grasses) which favors egg-laying and feeding sites, then migration to field crops in late fall after border vegetation were dried and exhausted;
6) gregarious and highly mobile behavior in which they form large aggregations that move together to favorable food conditions and for protection;
7) reduced numbers of natural enemies which allow for better survival of larvae. It takes time for natural enemies to establish and bring the cutworm numbers down to acceptable levels;
8) the natural cycle of winter cutworms can often peak when insect is first establishing in an area, and peaks again irregularly.

Management: Our experience is limited as this is a new pest in Oregon. There are no known thresholds for winter cutworm, but Michigan State University and Cornell University suggest 4 to 6 larvae per square foot for armyworm management. Many fields in the Willamette Valley are well above this threshold range.

Cocoons of wasp parasite of cutworm

Tachnid fly parasite

Many armyworm and cutworm larvae are kept below damaging populations by ***natural control agents*** such as parasitic wasps (e.g., *Trichogramma* and Braconid wasp spp.), flies (e.g.,*Tachnidae*), bacterial and virus diseases, parasitic nematodes, ground beetles, and birds. Little is known about the impact from beneficial organisms on this species in the Pacific Northwest.

Since winter cutworms move from field to field, a registered border treatment may be possible before movement. Fields including borders should be checked early and regularly to detect the presence of small larvae, less than 1 inch in size, which are easiest to control. However, insecticides may be necessary in the late fall and throughout winter to control large populations of mature larvae.

Keep these factors in mind with late-season insecticide applications in the Pacific Northwest: 1) insecticide penetration is increased when foliage is low, 2) larvae must be active, and 3) fall rains may help carry the insecticide down into the crown where larvae may be feeding, but too much rain may carry insecticides away from the target pest. It has been suggested that after the first frost in the fall, insecticides are not advised due to limited performance. If feeding persists into the winter, spray applications are most effective when daytime temperatures are greater than 40°F. However, above 50°F is ideal as cutworms are most active, and the chemical can biologically interfere with the insect's metabolism or normal behavior.

Other management tools might include:
1) Remove weeds and plant residue along field edges to reduce egg-laying and feeding sites, starve young larvae, 2) Till ground before planting to expose and kill overwintering larvae/pupae, and 3) Use currently registered insecticides labeled for armyworm and cutworm control (Hollingsworth, C.S. editor. 2015. PNW Insect Management Handbook, Extension Services of Oregon State, Washington State, and University of Idaho; web: http://insect.pnwhandbooks.org/legume-grass-field-seed). Follow the insecticide label directions and rotate chemistries to avoid resistance.

What can we expect in the spring? We can expect cutworm activity all winter, if temperatures are above freezing, which means damage could continue in early spring. Since larvae may be at different stages of growth (more and less mature), some will pupate in the early spring (and stop feeding); while younger larvae will continue feeding in the spring and pupate later. Therefore, it is important to continue monitoring in the spring.

Feeding notches on leaf blades from larvae.

NOTE: Two Oregon State Extension Bulletins will be published very soon highlighting 1) pest biology & identification, scouting & damage, and management options; and 2) differentiating between common cutworms and armyworms including variegated, glassy, spotted, and black cutworms; and the armyworm.

Winter cutworm damage on low-lying areas of lawn observed during fall 2015.

Disclaimer: Winter cutworm is not specifically listed on product labels; however, we could expect these products to be effective based on the winter cutworm's biology and life cycle being similar to other cutworms and armyworms that are listed on the labels. A product can be used to control winter cutworm as long as the crop and use site is on the product label.